

U.S. Environmental Protection Agency (EPA) Comments to the Arkansas Department of Environmental Quality (ADEQ) on Tyson Foods, Inc. Waldron Facility (AR0038482) Copper Water Effect Ratio (WER) Study Report

Narrative comments are provided below, followed by the review checklists. (Note: the review checklists simply serve as a tool to help document EPA's technical review of the WER report).

Priority Comments: *These comments need to be addressed before EPA can conclude that the final copper WERs (total and dissolved) in this study are technically acceptable for the entire portion of the unnamed tributary downstream of the Tyson facility discharge.*

1. The site water mix (SWM) used in this WER study (for both July and September 2011 testing rounds) was a flow-weighted composite of two different effluents (100% effluent from the Tyson-Waldron facility discharge and 100% effluent from the City of Waldron discharge, in accordance with the critical dilution in each permit). Both discharges are to an unnamed tributary to the Poteau River, with the Tyson-Waldron facility discharge being approximately a quarter mile upstream of the City's discharge. We believe both the July and September 2011 WERs (and final WER) are technically acceptable for the portion of the unnamed tributary where both discharges are present. However, we have a remaining concern as to whether the final study WER will be protective of the quarter mile portion of the unnamed tributary between Tyson's discharge and the City's discharge downstream. Ideally, a confirmatory WER would have also been determined using 100% effluent from only Tyson's discharge. Doing so would have helped to ensure that this final study WER (WER = 3.59, based on a flow-weighted composite of both Tyson and City effluent) will be protective of the quarter mile portion of the unnamed tributary that contains only Tyson effluent. Are there any additional factors or information that Tyson/GBMc can provide that ADEQ believes EPA should consider in evaluating whether the final WER of 3.59 will be protective of the quarter mile portion of the unnamed tributary that contains only Tyson effluent?

Additional Comments on the WER Study Report: *These comments pertain to the Tyson-Waldron Copper WER Study Report and are considered lower priority because they do not affect whether the final copper WERs for Tyson's Waldron facility are technically acceptable. However, the report would be improved if it were to be revised to address the following comments.*

2. The report should include the same type of data/information for the City of Waldron as was presented for the Tyson-Waldron facility (for example, the background information on permit limits/conditions, flow, and currently applicable copper criteria).
3. July 2011 Testing – Note that in the July 2011 SWM test, survival data reported is not consistent for dissolved and total summaries in Tables 9 and 10 of WER report (affects two test treatments). Please see table below. Differing concentrations would be expected, since Table 9 is for total copper and Table 10 is for dissolved copper; however, survival data would be expected to be the same for the same test.

July 8, 2011 – Total Table 9			July 8, 2011 – Dissolved Table 10		
Concentration	% Survival	No. Surviving	Concentration	% Survival	No. Surviving
0.053 ppm	100	20	0.047 ppm	90	18
0.079 ppm	95	19	0.052 ppm	100	20

4. According to the analytical results in App. C (see July 29, 2011, Control No. 149213, Page 3 of 6), the following revisions should be made to Table 6 of the WER report:
 - the July 7, 2011, lab water sample should have a pH of 7.9 not 8.2
 - the July 7, 2011, lab water sample should have an alkalinity of 66 not 60 mg/L
5. According to the analytical results in App. C (see July 29, 2011, Control No. 149213, Page 3 of 6), the following revisions should be made to Table 7 of the WER report (as well as the same table in App. B):
 - the July 7, 2011, lab water sample should have a pH of 7.9 not 8.2
 - the July 7, 2011, lab water sample should have an alkalinity of 66 not 60 mg/L
 - the July 7, 2011, lab water sample should have a conductivity of 350 not 260 umhos/cm
6. According to the analytical results in App. C (see September 27, 2011, Control No. 150931, Page 4 of 6), the following revisions should be made to Table 6 of the WER report:
 - the September 8, 2011, SWM sample should have a pH of 7.5 not 8.0
7. According to the analytical results in App. C (see September 27, 2011, Control No. 150931, Page 4 of 6), the following revisions should be made to Table 7 of the WER report (as well as the same table in App. B):
 - the September 8, 2011, SWM sample should have a pH of 7.5 not 8.0
 - the September 8, 2011, SWM sample should have a conductivity of 1200 not 990 umhos/cm
8. Laboratory analytical results were not available in Appendix C for the September 8, 2011, lab water sample for pH, hardness, alkalinity, or conductivity. As such, the September 8, 2011, lab water values shown in Tables 6 and 7 of the WER report for pH, hardness, alkalinity, and conductivity could not be verified. These laboratory analytical results should be added to Appendix C.
9. Footnotes 1 and 3 of Table 11 of the report are incorrect. Footnote 1 appears to have been a “copy and paste” error as Footnote 1 was previously associated with the Nashville WER study report. Footnote 2 is correct for the July 2011 SWM sample. Footnote 3 should be 250 mg/L for the September 2011 SWM sample. Also, no footnote numerals are presented within Table 11 even though they are described below the table.
10. The final WER reported in the first bullet in Section 8.0-Recommendations of the WER study report should be revised from 3.86 to 3.59.

Additional Comments to Consider When Conducting Any WER Studies in the Future:

11. Test organism acclimation protocols should be addressed in future WER workplans/reports (see Copper Streamlined WER Guidance,¹ Appendix A, Section B).
12. Include meteorological data (streamflow or rainfall) data in future WER reports (see Copper Streamlined WER Guidance, Appendix A, Section C.6).
13. Lab water preparation procedures (e.g., procedures used to prepare the moderately hard lab water) should be described in future WER workplans/reports (see Copper Streamlined WER Guidance, Appendix A, Section D.1).
14. Randomization protocols should be addressed in future WER workplans/reports (see Copper Streamlined WER Guidance, Appendix A, Section E.13).
15. Include test temperature data in future WER reports (see Copper Streamlined WER Guidance, Appendix A, Section F.3).

¹ Available online at:

http://water.epa.gov/scitech/swguidance/standards/handbook/upload/2007_04_17_criteria_copper_copper.pdf

Streamlined Copper WER: Review Checklist for July 2011 Testing

Permittee: Tyson Foods, Inc. (Waldron Facility) Permit No. AR0038482

Date reviewed: September 2013 Reviewer: Melinda McCoy, EPA R6

Questions	Yes	No	Comments
Date/Time sample collected?	X		July 7, 2011 Tyson-Waldron: every hour including and between 8:50 am and 11:50 am. City of Waldron: every hour including and between 8:30 am and 11:30 am
Date/Time test initiated?	X		July 8, 2011, at 3:10 pm
Organism culture, hold, acclimation, feed, and handling protocols summarized?	X		Most of this information is in Table 5 of the report.
Were the organisms acclimated to site water prior to initiating the test?	?	?	Not discussed in workplan or report, but considered optional per streamlined WER guidance (App A, B.2.)
If this is the 2 nd WER study, was it conducted at least four weeks after completion of the 1 st study?	n/a		This was the first round of WER testing.
Was upstream water unaffected by recent runoff events? Rainfall data should be included.			Rainfall data not included in WER report, but used www.wunderground.com to locate precipitation data near Booneville, AR. (This was the nearest station to Waldron available on the website. Booneville is approximately 26 driving miles from Waldron.) There does appear to have been a rain event on June 28, 2011, (0.16 in precipitation), but this occurred 9 days before sampling. See EPA file titled "Booneville Station_Rainfall_Jun 23-Jul 7.pdf."
Was the plant operating at "normal levels"? Flow data should be included.	X		Tyson-Waldron: The average of the effluent flows collected in July 2011 as part of the WER study was 0.9497 MGD. This flow is above the average of the monthly average flows from July 2009 to March 2013 which was 0.8174 MGD, but is within the range of monthly average flows from July 2009 – March 2013. City of Waldron: The average of the effluent flows collected in July 2011 as part of the WER study was 0.4514 MGD. This flow is below the average of the monthly average flows from October 2009 to March 2013 which was 0.5078 MGD, but is within the range of monthly average flows from October 2009 – March 2013.
Were samples stored at 0-4°C?	X		Chain-of-custody reports 2 deg C
Are chains-of-custody for samples included, accurate, and filled out completely?	X		
If chains-of-custody were not provided, were the sample dates and times provided?	n/a		Chain-of-custody provides sample date/time (see above).

Were analyses performed on the effluent that are normally required in the permit?	X														
If above question is yes, is the effluent sample representative of normal operations?	X		Yes, based on a review of DMR data from July 2009 to March 2013, the flow and concentrations of pollutants within both Tyson's and the City of Waldron's July effluent samples appear to be within the normal ranges.												
Were toxicity tests initiated w/in a maximum of 96 hours from the time of sample collection?	X														
If predators in the site water are a concern, was the site water filtered through a 37-60 µm sieve or screen?	?	?	Not discussed in workplan or report. Site water mix (SWM) was a flow-weighted composite of two effluents...no upstream water included.												
Was the laboratory hard water made in accordance with appropriate guidelines?	X		Unclear from workplan or report exact method used to prepare the moderately hard reconstituted lab water, but hardness, pH, and alkalinity appear appropriate for moderately hard water (see below).												
Did the lab water have DOC, TOC, and TSS <5 mg/L as required?	X		TOC = 1.2 mg/L, DOC = 1.3 mg/L and TSS <4 mg/L												
Was the hardness of the lab water between the required 40 and 220 mg/L?	X		94 mg/L												
Was the lab water hardness (w/in the above range) close to the site water?		X	Lab water 94 mg/L, Site Water Mix 260 mg/L, but hardness normalization used in final calculations.												
Are the lab water pH and alkalinity appropriate for the hardness used?	X		Alkalinity (66 mg/L), hardness (94 mg/L), and pH (7.9) appear appropriate (based on Tables 7-8 on pages 33-34 of USEPA 2002).												
Was the spiking stock solution made from an appropriate reagent?	X		Copper sulfate												
Was the same stock solution used for lab water and site water tests?	X														
Was the test conducted using <i>Ceriodapnia dubia</i> or <i>Daphnia magna</i> ?	X		<i>C. dubia</i>												
If "no" to the above question, was an adequate Species Mean Acute Value (SMAV) provided for the species used?	n/a														
Were test initiation dates and times provided?	X		July 8, 2011, at 3:10 pm												
Were test termination dates and times provided?	X		July 10, 2011 at ~2:30 pm												
Was a static test run?	X														
If "yes" to the above question, did the dissolved oxygen level remain acceptable throughout the entire test?	X														
If a static test was run, did the dissolved copper concentration at the end of 48 hours decrease by more than 50% from test initiation?		X													
Did it increase by more than 10% from test initiation?	X		Yes, see table below created from data on Pages 7-9 of July 29, 2011, lab report in Appendix C (Control No. 149211). <table border="1"> <thead> <tr> <th>Test</th><th>Initial</th><th>Final</th><th>% Difference</th></tr> </thead> <tbody> <tr> <td>SWM</td><td>4.1</td><td>7.3</td><td>78.05</td></tr> <tr> <td>SWM</td><td>56</td><td>73</td><td>30.36</td></tr> </tbody> </table>	Test	Initial	Final	% Difference	SWM	4.1	7.3	78.05	SWM	56	73	30.36
Test	Initial	Final	% Difference												
SWM	4.1	7.3	78.05												
SWM	56	73	30.36												

			However, based on data in Appendix C there was 90% - 100% survival in the two treatments noted above.
Was a range finder test conducted?	X		
Was the dilution factor used in the definitive tests of 0.6 or greater?	X		dilution series of 0.65
Was an unspiked dilution water control for each test used?	X		
Were at least 20 test organisms per treatment used?	X		20
Were two or more replicates used per treatment?	X		4
Were randomization procedures utilized?	?	?	Not addressed in workplan or report
Were the site water and lab water prepared in accordance with the appropriate guidance document?	X		Workplan and report do not get into very much detail about preparation of lab or site water. More details regarding spiking are provided and appear appropriate.
Were hardness, pH, alkalinity, TSS, and DOC measured at test initiation for both site water and lab water?	X		
Were dissolved oxygen, pH, and temperature measured for each treatment at the appropriate times during the test?	X		DO and pH results were reported on the lab sheets, but not temperature. However, the workplan and report says that temperature was measured during each WER test (see Footnote 1, Table 4 of report).
Was total copper measured?	X		
Was dissolved copper measured?	X		
Were summary tables provided containing copper concentrations and organism response for each concentration?	X		Note that in July 2011 SWM test, survival data reported is not consistent for dissolved and total summaries in Tables 9 and 10 of WER report (affects two test treatments).
Were an explanation of "unusual" observations and any procedural deviations provided if necessary?	n/a		Report doesn't mention any unusual observations.
Indicate in the comments section which of the measurements for the two questions above were used in calculating the WER?			Report shows what the July 2011 WERs would be for both total and dissolved copper, but final study WER uses dissolved WERs from July 2011 and September 2011.
Were the copper concentrations measured at the appropriate frequency, according to the guidance document, for dissolved or total recoverable copper?	X		At test initiation and termination for both dissolved and total.
Was the hardness normalized according to the guidance document?	X		Yes, see EPA spreadsheet titled "Tyson Waldron-H Normalization Calcs.xls"
Were the LC50 values calculated appropriately?	X		LC50s were verified...see EPA spreadsheets titled "...LC50 check...xls". In each spreadsheet, perform the following steps. 1. Go to worksheet labeled "Input" or "Input2". 2. Click on "Calculate Result" button. 3. Click on "View" tab at top of screen. 4. Click on "Macros." 5. Scroll down to highlight "TabsShow." 6. Click "Run." 7. View Spearman-Kärber LC50 on worksheet labeled "Spearman-Kärber."

			Also, note that in the July 2011 SWM test, survival data reported is not consistent for dissolved and total summaries in Tables 9 and 10 of WER report (affects two test treatments). Because of this issue, EPA also checked to see what the July 2011 SWM LC50s values would be for dissolved and total for both survival data scenarios (since it was unknown which scenario was true). The July 2011 SWM LC50s presented in the summary Tables 9 and 10 of the WER report are conservative (more stringent) than when using the other survival data scenario, so the July 2011 SWM LC50s in Tables 9 and 10 are okay.
Was the final study WER calculated appropriately in accordance with the guidance document?	X		Total WER = 3.45 Dissolved WER = 3.09
Did the test meet acceptability requirements?	X		July 2011 WER testing appears technically acceptable. However, EPA has a remaining concern as to whether the final study WER is protective of the ¼ mile stretch between Tyson's discharge and the City's discharge downstream. Ideally, a confirmatory WER would have also been determined using 100% effluent from Tyson to ensure that this study WER (based on a flow-weighted composite of both Tyson and City effluent) is also protective of the ¼ stretch that contains only Tyson effluent.

Streamlined Copper WER: Review Checklist for September 2011 Testing

Permittee: Tyson Foods, Inc. (Waldron Facility) Permit No. AR0038482

Date reviewed: September 2013 Reviewer: Melinda McCoy, EPA R6

Questions	Yes	No	Comments
Date/Time sample collected?	X		September 8, 2011 Tyson-Waldron: every hour including and between 9:30 am and 12:30 pm. City of Waldron: every hour including and between 9:15 am and 12:15 am
Date/Time test initiated?	X		September 9, 2011, at 2:29 pm
Organism culture, hold, acclimation, feed, and handling protocols summarized?	X		Most of this information is in Table 5 of the report.
Were the organisms acclimated to site water prior to initiating the test?	?	?	Not discussed in workplan or report, but considered optional per streamlined WER guidance (App A, B.2.)
If this is the 2 nd WER study, was it conducted at least four weeks after completion of the 1 st study?	X		
Was upstream water unaffected by recent runoff events? Rainfall data should be included.	X		Rainfall data not included in WER report, but used www.wunderground.com to locate precipitation data near Booneville, AR. (This was the nearest station to Waldron available on the website. Booneville is approximately 26 driving miles from Waldron.) There does appear to have been a rain event on August 29, 2011, (0.12 in precipitation), but this occurred 9 days before sampling. See EPA file titled "Booneville Station_Rainfall_Aug 25-Sept 8.pdf."
Was the plant operating at "normal levels"? Flow data should be included.	X		Tyson-Waldron: The average of the effluent flows collected in September 2011 as part of the WER study was 0.9274 MGD. This flow is above the average of the monthly average flows from July 2009 to March 2013 which was 0.8174 MGD, but is within the range of monthly average flows from July 2009 – March 2013. City of Waldron: The average of the effluent flows collected in September 2011 as part of the WER study was 0.4612 MGD. This flow is below the average of the monthly average flows from October 2009 to March 2013 which was 0.5078 MGD, but is within the range of monthly average flows from October 2009 – March 2013.
Were samples stored at 0-4°C?	X		Chain-of-custody reports 2 deg C
Are chains-of-custody for samples included, accurate, and filled out completely?	X		
If chains-of-custody were not provided, were the sample dates and times provided?	n/a		Chain-of-custody provides sample date/time (see above).

Were analyses performed on the effluent that are normally required in the permit?	X		
If above question is yes, is the effluent sample representative of normal operations?	X		Yes, based on a review of DMR data from July 2009 to March 2013, the flow and concentrations of pollutants within both Tyson's and the City of Waldron's September effluent samples appear to be within the normal ranges.
Were toxicity tests initiated w/in a maximum of 96 hours from the time of sample collection?	X		
If predators in the site water are a concern, was the site water filtered through a 37-60 µm sieve or screen?	?	?	Not discussed in workplan or report. Site water mix (SWM) was a flow-weighted composite of two effluents...no upstream water included.
Was the laboratory hard water made in accordance with appropriate guidelines?	X		Unclear from workplan or report exact method used to prepare the moderately hard reconstituted lab water, but hardness, pH, and alkalinity appear appropriate for moderately hard water (see below).
Did the lab water have DOC, TOC, and TSS <5 mg/L as required?	X		TOC <1 mg/L, DOC <1 mg/L and TSS <4 mg/L
Was the hardness of the lab water between the required 40 and 220 mg/L?	X		91 mg/L
Was the lab water hardness (w/in the above range) close to the site water?		X	Lab water 91 mg/L, Site Water Mix 250 mg/L, but hardness normalization used in final calculations.
Are the lab water pH and alkalinity appropriate for the hardness used?	X		Alkalinity (58 mg/L), hardness (91 mg/L), and pH (8.1) appear appropriate (based on Tables 7-8 on pages 33-34 of USEPA 2002).
Was the spiking stock solution made from an appropriate reagent?	X		Copper sulfate
Was the same stock solution used for lab water and site water tests?	X		
Was the test conducted using <i>Ceriodaphnia dubia</i> or <i>Daphnia magna</i> ?	X		<i>C. dubia</i>
If "no" to the above question, was an adequate Species Mean Acute Value (SMAV) provided for the species used?	n/a		
Were test initiation dates and times provided?	X		September 9, 2011, at 2:29 pm
Were test termination dates and times provided?	X		September 11, 2011, at 4:00 pm
Was a static test run?	X		
If "yes" to the above question, did the dissolved oxygen level remain acceptable throughout the entire test?	X		
If a static test was run, did the dissolved copper concentration at the end of 48 hours decrease by more than 50% from test initiation?		X	

Did it increase by more than 10% from test initiation?	X		<p>Yes, see table below created from data on Pages 5-8 of September 27, 2011, lab report in Appendix C (Control No. 150935).</p> <table border="1"> <thead> <tr> <th>Test</th><th>Initial</th><th>Final</th><th>% Difference</th></tr> </thead> <tbody> <tr> <td>SWM</td><td>5.01</td><td>6.81</td><td>35.93</td></tr> <tr> <td>LAB</td><td>4.23</td><td>6.18</td><td>46.10</td></tr> </tbody> </table> <p>However, based on data in Appendix C there was 100% survival in SWM treatment noted above. And, note that the lab water LC50 was not used in WER calculation (SMAV was used).</p>	Test	Initial	Final	% Difference	SWM	5.01	6.81	35.93	LAB	4.23	6.18	46.10
Test	Initial	Final	% Difference												
SWM	5.01	6.81	35.93												
LAB	4.23	6.18	46.10												
Was a range finder test conducted?	X														
Was the dilution factor used in the definitive tests of 0.6 or greater?	X		dilution series of 6.5												
Was an unspiked dilution water control for each test used?	X														
Were at least 20 test organisms per treatment used?	X		20												
Were two or more replicates used per treatment?	X		4												
Were randomization procedures utilized?	?	?	Not addressed in workplan or report												
Were the site water and lab water prepared in accordance with the appropriate guidance document?	X		Workplan and report do not get into very much detail about preparation of lab or site water. More details regarding spiking are provided and appear appropriate.												
Were hardness, pH, alkalinity, TSS, and DOC measured at test initiation for both site water and lab water?	X		But note that analytical result sheets from the lab in Appendix C do not provide the lab water results for pH, hardness, alkalinity or conductivity, so EPA relied on summary information provided in Tables 6 and 7.												
Were dissolved oxygen, pH, and temperature measured for each treatment at the appropriate times during the test?	X		DO and pH results were reported on the lab sheets, but not temperature. However, the workplan and report says that temperature was measured during each WER test (see Footnote 1, Table 4 of report).												
Was total copper measured?	X														
Was dissolved copper measured?	X														
Were summary tables provided containing copper concentrations and organism response for each concentration?	X														
Were an explanation of “unusual” observations and any procedural deviations provided if necessary?	n/a		Report doesn’t mention any unusual observations.												
Indicate in the comments section which of the measurements for the two questions above were used in calculating the WER?			Report shows what the September 2011 WERs would be for both total and dissolved copper, but final study WER uses dissolved WERs from July 2011 and September 2011.												
Were the copper concentrations measured at the appropriate frequency, according to the guidance document, for dissolved or total recoverable copper?	X		At test initiation and termination for both dissolved and total.												
Was the hardness normalized according to the guidance document?	X		Yes, see EPA spreadsheet titled “Tyson Waldron-H Normalization Calcs.xls”												

Were the LC50 values calculated appropriately?	X	LC50s were verified...see EPA spreadsheets titled "...LC50 check...xls". In each spreadsheet, perform the following steps. 1. Go to worksheet labeled "Input" or "Input2". 2. Click on "Calculate Result" button. 3. Click on "View" tab at top of screen. 4. Click on "Macros." 5. Scroll down to highlight "TabsShow." 6. Click "Run." 7. View Spearman-Kärber LC50 on worksheet labeled "Spearman-Kärber."
Was the final study WER calculated appropriately in accordance with the guidance document?	X	Total WER = 4.62 Dissolved WER = 4.18
Did the test meet acceptability requirements?	X	September 2011 WER testing appears technically acceptable. However, EPA has a remaining concern as to whether the final study WER is protective of the ¼ mile stretch between Tyson's discharge and the City's discharge downstream. Ideally, a confirmatory WER would have also been determined using 100% effluent from Tyson to ensure that this study WER (based on a flow-weighted composite of both Tyson and City effluent) is also protective of the ¼ stretch that contains only Tyson effluent.

Streamlined Copper WER: Final Study Review Checklist

Permittee: Tyson Foods, Inc. (Waldron Facility) Permit No. AR0038482

Date reviewed: September 2013 Reviewer: Melinda McCoy, EPA R6

Questions	Yes	No	Comments
Were any individual studies eliminated from consideration in the final WER calculation? If yes, provide an explanation.		X	The dissolved WER from each study was used to calculate the final WER.
Was the final WER calculated as the geometric mean of two (or more) samples?	X		Final Dissolved WER = 3.59 Final Total WER = 3.99
Does the final WER value “seem” acceptable? If no, explain why in the comments section?	?	?	July and September 2011 WER testing appear technically acceptable. However, EPA has a remaining concern as to whether the final study WER is protective of the ¼ mile stretch between Tyson’s discharge and the City’s discharge downstream. Ideally, a confirmatory WER would have also been determined using 100% effluent from Tyson to ensure that this final study WER (based on a flow-weighted composite of both Tyson and City effluent) is also protective of the ¼ stretch that contains only Tyson effluent.
Were acute and chronic criteria calculated? If yes, provide the results in the comments section.		X	No, but would be -- Using final Diss WER in Study Report: Acute: $4.61 \text{ ug/L} \times 3.59 = 16.55 \text{ ug/L (diss cu)}$ Chronic: $3.47 \times 3.59 = 12.46 \text{ ug/L (diss cu)}$
Did the test meet acceptability requirements?	X		Yes, but also see note above about ¼ stretch of unnamed tributary containing only Tyson effluent.
Were greater than 10% of control organisms adversely affected?		X	
For lab water, at least one treatment showed at least 50% of the organisms to be adversely affected?	X		
For site water, at least one treatment showed at least 63% of the organisms to be adversely affected?	X		
Did a lower concentration kill a higher % of orgs than a higher concentration? If so, did this occur for more than 2 concentrations affecting btwn. 20-80% of orgs?	X		Yes, possibly in July 2011 SWM test, but unclear because survival data reported is not consistent for dissolved and total summaries in Tables 9 and 10 of WER report. Regardless, even if the July 2011 SWM test survival data reported in the dissolved Table 10 is the true result, a lower concentration killed a higher % of organisms for only 1 concentration and only affected 10% of organisms.
Are the WERs obtained with the primary and secondary tests w/in a factor of 3? If yes, then	X		

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results are further confirmed.			
Does the test with the higher endpoint give the higher WER? If yes, then results are further confirmed.	X		